

CLAIMS

We claim:

- 5 1. In a communication network including a radio network providing communication services to a plurality of mobile stations operating within the radio network, wherein each mobile station is in communication with the radio network via an associated communication link, a method for scheduling the communication services comprising the steps of:
 - 10 for each mobile station determining a characteristic of the associated communication link;
 - forming a group of the plurality of mobile stations based upon the characteristic of the associated communication link; and
 - scheduling communication services collectively for the group.
- 15 2. The method of claim 1, wherein the characteristic comprises at least one of the group of characteristics comprising: path loss, power control setting, bit error rate and delay.
- 20 3. The method of claim 1, wherein the step of forming a group comprises forming a plurality of groups of the plurality of mobile stations, and the step of scheduling communication services collectively for the group comprises scheduling communication services collectively for each group.
- 25 4. The method of claim 3, wherein each group comprises mobile stations of the plurality of mobile stations having substantially alike characteristics of the communication links.
- 30 5. The method of claim 3, wherein the step of scheduling communication services collectively for each group comprises scheduling communication services for each group of the plurality of group on a recurring basis.
- 35 6. The method of claim 3, wherein the step of scheduling communication services collectively for each group comprises scheduling communication services for each group of the plurality of group on a sinusoidal basis.

7. The method of claim 1, wherein the step of determining a characteristic of the associated communication link comprises determining a power control state.

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8. The method of claim 1, wherein the step of scheduling communication services collectively for the group comprises transmitting schedule information to the group of the plurality of mobile stations.

10 9. The method of claim 1, wherein the step of scheduling communication services collectively for the group comprises scheduling communication services for the group so as to minimize the transmit power to reach each mobile station of the group of mobile stations.

15 10. The method of claim 1, wherein the group comprises a first mobile scheduled to receive a downlink transmission and a second mobile station requesting an uplink timeslot.

20 11. An apparatus for scheduling communication services within a communication network, the communication network providing communication services to a plurality of mobile stations operating within the radio network, wherein each mobile station is in communication with the communication network via an associated communication link, the apparatus comprising:

25 a base station system operable to establish and maintain communication links between the communication network and the plurality of mobile stations and further being operable to determine a characteristic of each of the communication links;

30 a scheduling algorithm within the base station system, the base station system operating in accordance with the scheduling algorithm to group the plurality of mobile stations based upon the characteristics, and to schedule communication services collectively for the group.

12. The apparatus of claim 11, wherein the characteristic comprises at least one of the group of characteristics comprising: path loss, power control setting, bit error rate and delay.

5 13. The apparatus of claim 11, wherein the base station is operates in accordance with the scheduling algorithm to form a plurality of groups of the plurality of mobile stations and to schedule communication services for the groups.

10 14. The apparatus of claim 13, wherein each group comprises mobile stations of the plurality of mobile stations having substantially alike characteristics of the communication links.

15 15. The apparatus of claim 13, wherein the scheduling algorithm comprises a recurring scheduling algorithm.

16. The apparatus of claim 13, wherein the scheduling algorithm comprises a sinusoidal scheduling algorithm.

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